

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A method for generating a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display~~ as a graphical user interface on a screen of a visual display unit of a machine vision system, said method comprising:

acquiring a first specification that describes a ~~set~~ plurality of hierarchical interrelationships among said ~~set~~ plurality of machine vision entities, the first specification being for constructing ~~the~~ a tree-style graphical representation of the hierarchical interrelationships among said plurality of machine vision entities;

acquiring a second specification that describes a ~~set of~~ plurality of non-hierarchical data flow interrelationships among said ~~set~~ plurality of entities, the second specification being for ~~constructing~~ enhancing the tree-style graphical representation by adding non-hierarchical data flow interrelationships among the plurality of machine vision entities;

constructing said enhanced tree-style graphical representation simultaneously representing graphically both said ~~set~~ plurality of hierarchical

interrelationships among said plurality of machine vision entities, and said set plurality of non-hierarchical data flow interrelationships among said set plurality of machine vision entities; and

displaying said enhanced tree-style graphical representation to produce said graphical user interface on said screen of said visual display unit of said machine vision system.

2. (original): The method according to claim 1, wherein said acquiring a first specification includes at least one of:

extracting said first specification from a digital file stored on a computer-readable medium; and

obtaining said first specification from an interactive graphical user interface.

3. (original): The method according to claim 1, wherein said acquiring a second specification includes at least one of:

extracting said second specification from a digital file stored on a computer-readable medium; and

obtaining said second specification from an interactive graphical user interface.

4. (currently amended): The method according to claim 1, wherein said constructing said enhanced tree-style graphical representation further comprises:

forming an initial tree-style graphical representation that depicts said set of hierarchical interrelationships among said set plurality of machine vision entities;
and

incorporating said set plurality of non-hierarchical data flow interrelationships into said initial tree-style graphical representation, by depicting said set plurality of non-hierarchical data flow interrelationships without altering said set plurality of hierarchical interrelationships depicted in said initial tree-style graphical representation, to produce said enhanced tree-style graphical representation.

5. (currently amended): The method according to claim 4, wherein said forming includes graphically depicting a hierarchical interrelationship between a parent entity and a child entity in such a manner that the child entity in said hierarchical interrelationship appears left-indented from where the parent entity in said hierarchical interrelationship appears.

6. (currently amended): The method according to claim 4, wherein said incorporating ~~by depicting~~ includes graphically displaying a data flow connection between any two machine vision entities involved in any one of said set plurality of non-hierarchical data flow interrelationships ~~on the right side of~~ proximate to

where said two machine vision entities appear in said initial tree-style graphical representation.

7. (currently amended): A method for modifying a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display~~ as a modified graphical user interface on a screen of a visual display unit of a machine vision system, said method comprises at least one of:

adding a new machine vision entity to the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships among said machine vision entities, and non-hierarchical data flow interrelationships among ~~a set of~~ said machine vision entities; and

deleting a depicted machine vision entity from the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships among said machine vision entities, and non-hierarchical data flow interrelationships among ~~a set of~~ said machine vision entities.

8. (currently amended): The method according to claim 7, wherein said adding further comprises:

- defining said new machine vision entity;
- specifying a position in said enhanced tree-style graphical representation where said new machine vision entity can be inserted;
- modifying said enhanced tree-style graphical representation to incorporate said new machine vision entity at said position; and
- displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

9. (currently amended): The method according to claim 7, wherein said deleting further comprises:

- selecting said depicted machine vision entity from said enhanced tree-style graphical representation;
- identifying any hierarchical interrelationship and any non-hierarchical interrelationship, associated with said depicted machine vision entity;
- modifying said enhanced tree-style graphical representation to incorporate the deletion of said depicted machine vision entity and the removal of said any hierarchical interrelationship and any non-hierarchical interrelationship, identified by said identifying; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

10. (currently amended): A method for modifying a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display~~ as a graphical user interface on a screen of a visual display unit of a machine vision system, said method comprises at least one of:

adding a new hierarchical interrelationship to the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships, and non-hierarchical data flow interrelationships among a ~~set~~ plurality of machine vision entities;

deleting a depicted hierarchical interrelationship from the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships, and non-hierarchical data flow interrelationships among a ~~set~~ plurality of machine vision entities; and

updating a depicted hierarchical interrelationship in the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships and non-hierarchical data flow interrelationships among a ~~set~~ plurality of machine vision entities.

11. (currently amended): The method according to claim 10, wherein said adding further comprises:

obtaining a specification that describes said new hierarchical interrelationship;

modifying said enhanced tree-style graphical representation according to said specification; and

displaying said tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

12. (currently amended): The method according to claim 10, wherein said deleting further comprises:

selecting said depicted hierarchical interrelationship from said enhanced tree-style graphical representation;

modifying said enhanced tree-style graphical representation so that said depicted hierarchical interrelationship is removed; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

13. (currently amended): The method according to claim 10, wherein said updating further comprises:

selecting said depicted hierarchical interrelationship from said enhanced tree-style graphical representation;

revising the specification associated with said depicted hierarchical interrelationship to produce a modified hierarchical interrelationship;

and

modifying said enhanced tree-style graphical representation to replace said depicted hierarchical interrelationship by said modified hierarchical interrelationship; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

14. (currently amended): A method for modifying a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display as a modified graphical user interface on a screen of a visual display unit of a machine vision system, said method comprises at least one of:

adding a new non-hierarchical data flow interrelationship to the depiction of said enhanced tree-style graphical representation;

deleting a depicted non-hierarchical data flow interrelationship from the depiction of said enhanced tree-style graphical representation; and

updating a depicted non-hierarchical data flow interrelationship in the depiction of said enhanced tree-style graphical representation.

15. (currently amended): The method according to claim 14, wherein said

adding further comprises:

obtaining a specification that describes said new non-hierarchical data flow interrelationship;

modifying said enhanced tree-style graphical representation according to said specification; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

16. (currently amended): The method according to claim 14, wherein said deleting further comprises:

selecting said depicted non-hierarchical data flow interrelationship from said enhanced tree-style graphical representation;

modifying said enhanced tree-style graphical representation so that said depicted nonhierarchical data flow interrelationship is removed; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

17. (currently amended): The method according to claim 14, wherein said updating further comprises:

selecting said depicted non-hierarchical data flow interrelationship from said enhanced tree-style graphical representation;

revising the specification associated with said depicted non-hierarchical data flow interrelationship to produce a modified non-hierarchical data flow interrelationship;

modifying said enhanced tree-style graphical representation to replace said depicted non-hierarchical data flow interrelationship by said modified non-hierarchical data flow interrelationship; and

displaying said enhanced tree-style graphical representation, modified by said modifying to produce said modified graphical user interface on said screen of said display unit of said machine vision system.

18. (original): Obtaining as in any one of claim 2 and claim 11, wherein said obtaining further comprises:

displaying various machine vision entities from said ~~set~~ plurality of machine vision entities in said graphical user interface;

selecting a parent entity from said various machine vision entities within said interactive graphical interface;

selecting a child entity from said various machine vision entities within said interactive graphical interface; and

defining a hierarchical interrelationship between said parent entity and said child entity.

19. (original): Obtaining as in any one of claim 3 and claim 15, wherein said obtaining further comprises:

displaying various machine vision entities from said ~~set~~ plurality of machine vision entities in said graphical user interface;

selecting a first machine vision entity from said various machine vision entities;

selecting a second machine vision entity from said various machine vision entities; and

defining a non-hierarchical data flow interrelationship between said first machine vision entity and said second machine vision entity.

20. (currently amended): A computer-readable medium encoded with a program for generating a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display as a graphical user interface on a screen of a visual display unit of a machine vision system, said program comprising:

acquiring a first specification that describes a set plurality of hierarchical interrelationships among said set plurality of machine vision entities, the first specification being for constructing the a tree-style graphical representation;

acquiring a second specification that describes a set plurality of non-hierarchical data flow interrelationships among said set plurality of machine vision entities, the second specification being for constructing enhancing the tree-style graphical representation;

constructing said enhanced tree-style graphical representation simultaneously representing both said set of hierarchical interrelationships and

said set plurality of non-hierarchical data flow interrelationships among said 20
set plurality of machine vision entities; and

displaying said enhanced tree-style graphical representation to produce
said graphical user interface on said screen of said visual display unit of said
machine vision system.

21. (currently amended): A computer-readable medium encoded with a program
for modifying a an enhanced tree-style graphical representation of
interrelationships among a plurality of machine vision entities that depicts
~~simultaneously hierarchical and non-hierarchical interrelationships among a set~~
~~of entities and that is displayed~~ for display as a modified graphical user interface
on a screen of a visual display unit of a machine vision system, said program
comprising at least one of:

adding another machine vision entity to the depiction of said enhanced
tree-style graphical representation that depicts simultaneously hierarchical
interrelationships, and non-hierarchical data flow interrelationships among a ~~set~~
plurality of machine vision entities; and

deleting a depicted machine vision entity from the depiction of said
enhanced tree-style graphical representation that depicts simultaneously
hierarchical interrelationships, and non-hierarchical data flow interrelationships
among a ~~set~~ plurality of machine vision entities.

22. (currently amended): A computer-readable medium encoded with a program for modifying a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display~~ as a modified graphical user interface on a screen of a visual display unit of a machine vision system, said program comprising at least one of:

adding another hierarchical interrelationship to the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships, and non-hierarchical data flow interrelationships among a set plurality of machine vision entities;

deleting a depicted hierarchical interrelationship from the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships, and non-hierarchical data flow interrelationships among a set plurality of machine vision entities; and

updating a depicted hierarchical interrelationship in the depiction of said enhanced tree-style graphical representation that depicts simultaneously hierarchical interrelationships, and non-hierarchical data flow interrelationships among a set plurality of machine vision entities.

23 (currently amended): A computer-readable medium encoded with a program for modifying a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed~~ for display as a modified graphical user interface on a screen of a visual display unit of a machine vision system, said program comprising at least one of:

adding another non-hierarchical data flow interrelationship to the depiction of said enhanced tree-style graphical representation;

deleting a depicted non-hierarchical data flow interrelationship from the depiction of said enhanced tree-style graphical representation;

updating a depicted non-hierarchical data flow interrelationship in the depiction of said enhanced tree-style graphical representation.

24. (currently amended): A system for generating a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical and non-hierarchical interrelationships among a set of entities and that is displayed for display~~ as a graphical user interface of a machine vision system, said system for generating an enhanced tree-style graphical representation comprising:

an acquisition mechanism to acquire specifications for said hierarchical interrelationships and non-hierarchical data flow interrelationships among said a set plurality of machine vision entities;

a storage mechanism to store said specifications for said hierarchical interrelationships and nonhierarchical data flow interrelationships, acquired by said acquisition mechanism;

a enhanced tree-style graphical representation generation unit to generate said enhanced tree-style graphical representation based on said hierarchical interrelationships, and non-hierarchical data flow interrelationships; and

a display unit on which said enhanced tree-style graphical representation is displayed to produce said graphical user interface of said machine vision system.

25. (currently amended): A system for acquiring the information about a ~~set~~ plurality of machine vision entities and at least one specification describing the interrelationships among said ~~set~~ plurality of machine vision entities, said system comprising:

a computer-readable medium on which at least one digital file is stored;

an extractor to extract, from said at least one digital file, said information about said ~~set~~ plurality of machine vision entities and said at least one specification about said interrelationships among said ~~set~~ plurality of machine vision entities;

an interactive graphical user interface;

an interactive acquisition unit to interactively acquire, via said interactive graphical user interface, said information about said ~~set~~ plurality of machine vision entities and said at least one specification about said interrelationships among said ~~set~~ plurality of machine vision entities; and

a storage mechanism to store the information about said ~~set~~ plurality of machine vision entities and said at least one specification, acquired by at least one of any said extractor and said interactive acquisition unit.

26. (currently amended): A system for constructing a an enhanced tree-style graphical representation of interrelationships among a plurality of machine vision entities ~~that depicts simultaneously hierarchical interrelationship and non-hierarchical interrelationships among a set of entities and that is displayed for~~ display as a graphical user interface on a screen of a display unit of a machine vision system, said system for constructing comprising:

a storage mechanism to store a first specification describing a set plurality of hierarchical interrelationships and a second specification describing a set plurality of non-hierarchical data flow interrelationships among a set plurality of machine vision entities;

an initial tree-style graphical representation generator to generate an initial tree-style graphical representation based on said first specification retrieved from said storage mechanism;

an augmented enhanced tree-style graphical representation generator to generate said enhanced tree-style graphical representation based on said initial tree-style graphical representation by depicting non-hierarchical data flow interrelationships among said set plurality of machine vision entities in said initial tree-style graphical representation according to said second specification retrieved from said storage mechanism; and

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a display unit to display said enhanced tree-style graphical representation
generated by said ~~augmented~~ enhanced tree-style graphical representation
generator.